

Seend School Science Policy (Science and Technology)

“We aim to inspire the members of our community to follow God’s light and as a result: form caring relationships, have high aspirations, embrace all opportunities, appreciate diversity, give generously and show environmental responsibility. In achieving our mission, we can all make a positive contribution to our global society.”

“I am the light of the world. If you follow me, you won’t have to walk in the darkness, because you will have the light that leads to life.” John 8:12

(Seend Church of England Primary School’s Vision Statement)

Curriculum Intent

At Seend Primary School, we believe that the curriculum should open children's minds, develop a sense of wonder about the world around them, engage their natural curiosity and inspire them to be life-long learners. Our curriculum aims to provide for progression through a balance of knowledge and skills across a combination of discreet teaching and robust cross curricular links. It will be made accessible to all children in a fully inclusive manner.

The whole curriculum should also contribute to children’s moral, social, cultural and spiritual development in support of our vision for the Seend School community.

Science intent

Science should give children a strong understanding of the world around them through the specific disciplines of biology, chemistry and physics. Children should acquire specific skills and knowledge to help them to think scientifically, to gain an understanding of scientific processes and also an understanding of the uses and implications of Science, today and for the future. Our primary aim is to foster curiosity, challenge, imagination, excitement, confidence, self motivation and enjoyment in the pursuit of Science.

Through high quality teaching, we will develop the following essential characteristics of scientists:

- Ability to explain their own thinking to others and articulate their understanding in a range of different situations;
- Use scientific contexts to develop and consolidate cross curricular skills in literacy, Maths and ICT;
- A genuine interest in the subject and a real sense of curiosity about the world;
- An extensive scientific vocabulary and ability to articulate scientific concepts clearly and precisely;
- To develop a respect for the environment and care for living things;
- Fluency in complex, scientific enquiry and the ability to apply questioning skills, as well as effective presentation techniques;
- The ability to make predictions, reach clear conclusions and explain their findings;
- Ability to work scientifically by predicting, questioning, observing, planning, measuring, carrying out and evaluating investigations;
- Question the world around them and become independent learners in exploring possible answers for their scientific based questions.

Implementation

- Teachers plan a two year rolling cycle of investigation-based topics. Some investigations are Science led and others deliver Science in a cross curricular context.***
- From this, teachers plan a cycle of lessons which ensure progression in skills and knowledge and suited to mixed age classes.
- Lessons will be creative and engaging, using a variety of the best teaching techniques to ensure children's understanding and development as scientists.
- Planning will include elements of whole school learning approaches such as learning powers, growth mindsets, top talking and learning outside the classroom.
- Teachers to provide children with opportunities to work collaboratively in pairs, groups and/or individually.
- Effective questioning will be planned for in order to deepen children's understanding and to encourage them to develop their own questioning skills.
- Trips with a scientific focus will be used to enhance children's learning experience when appropriate. Other trips will be explored for incidental scientific outcomes.
- Residential trips in Sycamore and Chestnut Class will be used to enhance science learning through the application of knowledge and skills in practical contexts.
- Teachers will carry out risk assessments for any science activity that carries a degree of risk as appropriate.
- Continuing professional development will be provided according to the needs and interests of the staff and in line with the school development plan.

Impact

- Teacher assessment, throughout the year, will be formative and ongoing.
- Summative assessment will take place at the end of the year and pupil attainment is recorded on assessment grids and reported to parents.
- Individual science books, learning journals and floor books will be used to display children's learning and to evidence the range of stimulating activities in which pupils have been engaged. Children will be given time to reflect upon their previous learning and respond to feedback.
- Delivery of the curriculum and pupil progress is monitored by the subject lead and head teacher, through discussion with pupils using the evidence in books, learning journals and floor books.
- The governing body will monitor the school's progress in developing and implementing the Science curriculum through the sharing of individual workbooks, learning journals, floor books, discussion with the subject leader and head, link governor visits, pupil discussions and the sharing of end of year data.
- This policy will be routinely reviewed at least every year.

*****Science Curriculum Map Overview**

Cycle A

	Content/ Topic	Skills
<p>Holly EYFS/Year 1</p>	<p>Plants:</p> <ul style="list-style-type: none"> • What do plants need to grow? Grow own potatoes – 4 groups – who will grow the most? • What plants can you name? • What trees can you name? • What parts of a plant / tree can you name? • Do all apples have the same number of seeds? – PS <p>Animals, including humans:</p> <ul style="list-style-type: none"> • Our body - What body parts can you name? • If you are the oldest are you the tallest? - PS • Local walk of Seend – What plants and animals can you see? • What are the 5 Senses? To share experiences i.e “I like to taste bread.” • Do animals have the same senses as humans? - RSS • Caring for living things - How should we care for pets? Pets to visit Holly Class • Changes over time - How have you changed since being a baby? - OOT • What can you do to be healthy? • Different types of animals (animal topic) - What facts do you know about animals? Where do different animals live? • What is the life cycle of a butterfly? • Where are dinosaurs now? What does the word extinct mean? Look at dinosaur species, physical features and diets. Which dinosaurs can you name? 	<p>Plants:</p> <ul style="list-style-type: none"> • Identify, observe and discuss similarities and differences in relation to plants and trees - ICG • Record own measurements e.g. using prepared tables, pictograms, tally charts and bar charts (record ‘potato growth’) - OOT, CFT • Record own observations e.g. using photographs, videos, drawings, labelled diagrams or in writing (label own plant & tree) • Use simple secondary sources (such as identification sheets, fans, outdoor boards and books) to name and compare plants and trees (flower and tree detectives!) – RSS <p>Animals, including humans:</p> <ul style="list-style-type: none"> • Record own observations e.g. using photographs, videos, drawings, labelled diagrams or in writing (label template of a body) • Record measurements e.g. using prepared tables, pictograms, tally charts and bar charts (record height & age) - OOT, CFT, PS • Make observations of animals and discuss similarities and differences • Identify and name the senses and be able to ask and answer simple questions • Make careful observations to support identification, comparison and noticing change (pets, baby to now, growing our own butterflies, animals, dinosaurs) – OOT, ICG • Use own observations to compare living things • Sort and group (animals, dinosaurs, healthy and unhealthy foods) - ICG • Use simple secondary sources (such as identification sheets, fans, outdoor boards and books) to name and compare living things – RSS • Describe the characteristics they used to identify a living thing • Shows care and concern for living things

	<p>Everyday materials:</p> <ul style="list-style-type: none"> • How do we make bread? Children to make bread rolls – to observe process - link to Literacy (The Little Red Hen) + Harvest • Materials - What materials can be used to make things? • Which objects will be magnetic? Why? • Float or sink? Why? • How is ice made? Where will the ice melt the fastest? Why? <p>Seasonal Changes:</p> <ul style="list-style-type: none"> • What are the four seasons? • Sunlight: How are shadows made? Make Dinosaur shadows 	<ul style="list-style-type: none"> • Similarities and differences in relation to diet and physical features of animals and dinosaur - ICG • Record own observations e.g. using photographs, videos, drawings, labelled diagrams or in writing (simple food chains & life cycles – human, butterfly, frog) <p>Everyday materials:</p> <ul style="list-style-type: none"> • Make careful observations to support noticing change: <p>ingredients – dough – risen dough – bread roll - OOT</p> <p>liquid – solid – liquid - CFT)</p> <ul style="list-style-type: none"> • Similarities and differences in relation to different materials • Ask and answer simple questions, make predictions and draw simple conclusions – CFT • Make careful observations to support identification and comparison of different materials <p>Seasonal Changes:</p> <ul style="list-style-type: none"> • Make careful observations to support identification, comparison and noticing change (seasons, different types of weather) – OOT • Talks about why things happens and how things work • Record their measurements e.g. using prepared tables, pictograms, tally charts and bar charts (shadow length) – PS (Does the tallest dinosaur make the longest shadow?)
Oak Year 1/2	<p>Living Things and their Habitats:</p> <p>Enquiries: <i>What is a habitat? What does alive or living mean? What must habitats provide? How can we find out more about a local habitat?</i> (These enquiries are applied to a few small areas/micro habitats in the school grounds and studied throughout the year – creating a book)</p> <ul style="list-style-type: none"> • Distinguish between things that are living, dead, never been alive • Know that most living things live in habitats to which they are suited and meet their needs 	<p>Working Scientifically:</p> <ul style="list-style-type: none"> • Observe closely (using equipment), over time (Ob) • Classifying and grouping (CG) • Pattern seeking (PS) • Researching using secondary sources (RSS) • Comparative and fair testing (CFT) <p>Living Things and their Habitats:</p> <ul style="list-style-type: none"> • To recognise and identify living things and seasonal change (Ob) (RSS) • To observe closely using all senses (Ob) • To describe observations and findings using some subject-specific vocabulary

- Identify and describe a variety of plants and animals
- Begin to understand how animals obtain their food from plants and other animals (food chains)

Seasonal Change

(Light-touch all year)

Enquiry: **Which season is it and how do we know?**

How do our chosen habitats change?

- Seasonal changes
- Seasonal weather changes
- Changes in day length

(Linked to observation of selected habitats/micro habitats in school grounds – see Living Things and their Habitats)

Materials and their Uses

(Y1 to focus more on properties and Y2 more on uses and on more advanced “skills” – building on last year’s work)

Enquiry: **Which material would be best to wrap the factory’s cotton in for transportation (ie waterproof and flexible)?**

Supporting enquiries: **What material is this object made out of? What are some of the properties of this material and what might it be used for?**

- Distinguish between an object and the material out of which it is made (What material is this object made out of?)
- Identify and name a variety of everyday materials (including wood, plastic, glass, metal, water, rock) and a range of fabrics
- Describe simple physical properties of materials (selected from: hard/soft, smooth/rough, reflective (shiny)/ non-reflective(dull), transparent/translucent/ opaque, flexible/rigid, liquid/solid, elastic, absorbent/waterproof, insulator/conductor)
- Compare, sort and group materials based on properties
- Natural and man-made (cotton, wool, nylon etc) Focus on fabrics (wool, cotton, silk, synthetic), their origins (manmade or

- To sort living things using the skills of selecting, classifying and categorising (living, dead, never been alive) (CG)
- To compare and contrast animals and habitats (CG) (PS)
- To ask scientific questions (CFT)

Seasonal Change

- To recognise and identify seasonal change (Ob) (RSS)
- To observe a habitat closely using all senses (Ob)
- To describe observations and findings using some subject-specific vocabulary (animals, plants and weather related)
- To compare and contrast (CG)
- To ask scientific questions (CFT)
- To record observations
- To describe results and begin to attempt to explain them (PS)
- To recognise surprises (PS)
- To recall learnt information and skills

Materials and their Uses

- To recognise and identify materials (Ob) (RSS)
- To observe materials closely using all senses (Ob)
- To describe observations and findings using some subject-specific vocabulary (see list of properties and names of materials)
- To sort materials using the skills of selecting, classifying and categorising (CG)
- To ask scientific questions (CFT)
- To recall learnt information and skills

Investigating: (CFT)

Waterproof or absorbent?

How can the shape be changed?

- To begin to suggest ways in which we could find out which materials are waterproof/ absorbent and how we can change the shape of materials
- To carry out simple tests accurately and with care
- To make simple measurements
- To record results
- To describe results and begin to attempt to explain them (PS)

	<p>natural) and whether they are woven or knitted? (DT link)</p> <ul style="list-style-type: none"> • Explore the concept of “waste” and how a factory might dispose of it in the past and today (environmental responsibility link) • Explore the states of water at a simple level recognising that steam, water and ice are the same material (and know that steam was used to power engines in the past). • Identify and compare the uses of different materials • Investigate how the shape of some solid materials can be changed by squashing, bending, twisting and stretching (flexibility of wrapping materials). • Investigate which materials are waterproof or absorbent <p>Plants Enquiry: <i>What are plants and why are they so important ?</i> <i>What do plants need to grow and be healthy?</i></p> <ul style="list-style-type: none"> • Identify, name and describe a variety of common wild and garden plants including deciduous and evergreen trees. • Identify and describe the basic structure of a variety of common flowering plants including trees. • Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. 	<ul style="list-style-type: none"> • To recognise surprises (PS) • To begin to understand that tests should be “fair” <p>Plants:</p> <ul style="list-style-type: none"> • To recognise and identify some plants (Ob) (RSS) • To observe closely using all senses (Ob) • To describe observations and findings using some subject-specific vocabulary (eg Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, light, shade, sun, warm, cool, water, grow, healthy names of trees in the local area, names of garden and wild flowering plants in the local area) (Ob) • To sort living things using the skills of selecting, classifying and categorising (CG) • To compare and contrast in order to identify plants (CG) • To recall learnt information (RSS) <p>Investigating (CFT) What do plants need to grow?</p> <ul style="list-style-type: none"> • To begin to suggest ways in which we could find answers to questions • To carry out simple tests accurately and with care • To describe results and begin to attempt to explain them (PS) • To recognise surprises (PS) • To begin to understand that tests should be “fair”
Chestnut	Animals, including humans:	Animals, including humans:

Year 3/4

Enquiries/key questions from the unit:
What can we do to look after our bodies?

Supplementary questions/enquiries:

What can happen if we don't get the right nutrients?

How do our skeletons and muscles help us?

How do we digest food?

What part do teeth play in digestion? Why do we need to look after our teeth?

- Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat
- Identify that humans and some other animals have skeletons and muscles for support, protection and movement
- Describe the simple functions of the basic parts of the digestive system in humans
- Identify the different types of teeth in humans and their simple functions
- Construct and interpret a variety of food chains, identifying producers, predators and prey

Rocks:

Enquiries/key questions from the unit:
What do rocks tell us about the way the Earth was formed?

What are rocks? Are rocks alive? How do you know? Why are there rocks everywhere? How do rocks form? What are the three types of rocks? What causes them to be different? Are all rocks hard? What about clay? Are Dinosaurs Real? Why do we have fossils for some animals and not others? What is a palaeontologist? Learn about Mary Anning (female scientist) and how she has contributed to our findings)
What is soil? What is soil made from? What part do rocks play in forming soil?

- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
- Recognise that soils are made from rocks and organic matter.

- Identify food groups and what nutrition they provide **ICG**
- Group foods into nutrient group **ICG**
- Discuss what happens when you don't get the correct nutrients
- Identify and name different bones and muscles that make up our human body and explain why they help us (support, protection and movement) **ICG**
- Group bones and muscles into categories (support, protection and movement) **ICG**
- Use secondary sources to research parts of the digestive system **RSS**
- Classify teeth dependent on their function **ICG**
- Observe what happens when teeth decay (using vinegar and egg shells) **OOT**
- Is there a pattern to food chains? **PS**

Rocks:

- Group rocks into categories (natural or man-made) **ICG**
- Group rocks into their type based on their properties (igneous, sedimentary or metamorphic) **ICG**
- Make observations of different types of rocks based on their properties **Ob**
- Compare different rocks based on their properties **ICG**
- Test permeability, durability and density of rocks **CFT**
Research Mary Anning and her discovery **RSS**
Investigate soil permeability **CFT**

	<ul style="list-style-type: none"> Describe in simple terms how fossils are formed when things that have lived are trapped within rock <p>Forces and Magnets: Enquiries/key questions from the unit: NEED ENQUIRY QUESTION – (DOING IT TERM 4)</p> <ul style="list-style-type: none"> Compare how things move on different surfaces (friction) Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance (push and pulls) Observe how magnets attract or repel each other and attract some materials and not others Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials Describe magnets as having 2 poles Predict whether 2 magnets will attract or repel each other, depending on which poles are facing 	<p>Forces and Magnets:</p> <ul style="list-style-type: none"> Compare how things move on different surfaces CFT Identify forces in action ICG Investigate friction by exploring a vehicle travelling over different surfaces ICG Use magnets to observe how magnets attract or repel each other and attract some materials and not others Ob Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials CFT and ICG
Sycamore	<ul style="list-style-type: none"> Forces incl. gravity, balanced forces, friction air resistance, water resistance pulley and levers. Materials – Properties and Solutions (dissolving, evaporating, filtering, sieving) Reversible and irreversible changes. Life cycles of plants and animals and how they reproduce. Animals including humans – Main features of the circulatory system and how that transports the things we need around the body. How our bodies change in time including ageing and puberty. 	<ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations Identifying scientific evidence that has been used to support or refute ideas or arguments.

Cycle B

	Content/ Topic	Skills
Holly	<p>Plants:</p> <ul style="list-style-type: none"> • What do plants need to grow? Grow own potatoes & beans (magic beanstalks!). • What plants can you name? • What trees can you name? • What parts of a plant / tree can you name? • Which location will help the beanstalk to grow the tallest? Why? – CFT <p>Animals, including humans:</p> <ul style="list-style-type: none"> • Our body - What body parts can you name? • If you are the oldest are you the tallest? - PS • Local walk of Seend – What plants and animals can you see? * • What are the 5 Senses? To share experiences i.e “I like to taste bread.” • Do animals have the same senses as humans? • Caring for living things - How should we care for pets? Pets to visit Holly Class • Changes over time - How have you changed since being a baby? • What can you do to be healthy? • What is the life cycle of a butterfly? • Arctic and Antarctic - What animals live there? How do the animals stay warm? • Why do people feed birds more in the winter? Do bigger birds lay more eggs than smaller birds? – PS • Minibeast hunt! Trip: Butterfly World or Westonbirt Arboretum 	<p>Plants:</p> <ul style="list-style-type: none"> • Identify, observe and discuss similarities and differences in relation to plants and trees - ICG • Record own measurements e.g. using prepared tables, pictograms, tally charts and bar charts (record potato and beanstalk growth) - OOT, CFT • Record own observations e.g. using photographs, videos, drawings, labelled diagrams or in writing (label own plant & tree) • Use simple secondary sources (such as identification sheets, fans, outdoor boards and books) to name and compare plants and trees (flower and tree detectives!) – RSS <p>Animals, including humans:</p> <ul style="list-style-type: none"> • Record own observations e.g. using photographs, videos, drawings, labelled diagrams or in writing (label template of a body, photograph, draw and label minibeasts, life cycles – human, butterfly) • Record measurements e.g. using prepared tables, pictograms, tally charts and bar charts (record height & age, number of minibeasts found) - OOT, CFT, PS • Make observations of pets & minibeasts (use of magnifying glasses) and discuss similarities and differences • Identify and name the senses and be able to ask and answer simple questions • Make careful observations to support identification, comparison and noticing change (pets, baby to now, growing our own butterflies, pets, minibeasts) – OOT, ICG

	<p>Everyday materials:</p> <ul style="list-style-type: none"> • How do we make bread? Children to make bread rolls – to observe process - link to Literacy (The Little Red Hen) + Harvest • Materials - What materials can be used to make things? • Which materials will make the best boat? • How is ice made? Where will the ice melt the fastest? Why? • Air-mazing air: Which bottle will make the rocket mouse fly the furthest? Why? <p>Seasonal Changes:</p> <ul style="list-style-type: none"> • What are the four seasons? 	<ul style="list-style-type: none"> • Sort and group (pets, minibeasts, healthy and unhealthy foods) - ICG • Shows care and concern for living things • Similarities and differences in relation to diet and physical features of pets, minibeasts - ICG • Use simple secondary sources to compare different types of birds & minibeasts (outdoor bird & minibeast identification boards and fans- RSS) <p>Everyday materials:</p> <ul style="list-style-type: none"> • Make careful observations to support noticing change: <p>ingredients – dough – risen dough – bread roll - OOT</p> <p>liquid – solid – liquid - CFT)</p> <ul style="list-style-type: none"> • Similarities and differences in relation to different materials • Ask and answer simple questions, make predictions and draw simple conclusions – CFT • Make careful observations to support identification and comparison of different materials • Ask and answer simple questions, make predictions and draw simple conclusions – CFT, PS <p>Seasonal Changes:</p> <ul style="list-style-type: none"> • Make careful observations to support identification, comparison and noticing change (seasons, different types of weather) - OOT
Oak	<p>Seasonal Changes: (<i>Light-touch all year after focus in Terms 1 / 2</i>)</p> <p>Enquiry: What is the weather like in the UK and how does it change from season to season? How can we describe, measure and record it?</p> <ul style="list-style-type: none"> • Observe and describe weather associated with the seasons • Changes in day length • Keep a record of weather for the year including some measuring (eg temperature/ rainfall) 	<p>Working Scientifically:</p> <ul style="list-style-type: none"> • Observe closely (using equipment), over time (Ob) • Classifying and grouping (CG) • Pattern seeking (PS) • Researching using secondary sources (RSS) • Comparative and fair testing (CFT) <p>Seasonal Changes:</p> <ul style="list-style-type: none"> • To recognise and identify different weather (Ob) (RSS) • To observe weather closely using all senses (Ob) • To describe observations and findings using some subject-specific vocabulary (name different weathers and temperature comparison) • To ask scientific questions (CFT)

Materials and their Uses:

(Y1 to focus more on properties and Y2 more on uses and on more advanced "skills" – building on last year's work)

Enquiry: *What do we use materials for and why?*

(Focus on materials used in buildings in Seend and Japan and best materials for making a collage and junk-model houses)

Supporting enquiries: ***What material is this object made out of? What are some of the properties of this material and what might it be used for?***

- Distinguish between an object and the material out of which it is made
- Identify and name a variety of everyday materials (including wood, plastic, glass, metal, water, rock). Focus on a variety of Art and Craft materials (esp paper, clay) with which children are familiar and on materials used for buildings in Seend and in Japan (Art, DT and Geography link)
- Describe and explore physical properties (selected from: hard/soft, smooth/rough, reflective (shiny)/ non-reflective(dull), transparent/translucent/ opaque, flexible/rigid, liquid/solid, elastic, absorbent/waterproof, insulator/conductor)
- Compare, sort and group materials based on properties
- Change the shape of some solid materials by squashing, bending, twisting and stretching (clay pots, scrunching/tearing collage materials)
- Paper – explore in depth, looking at how properties relate to uses (to write on, paint on, wrap cheese, origami, make a fan etc)
- Recycling materials: What happens to materials after we have finished with them (Reuse for junk modelling)? Which

- To begin to suggest ways in which we could find answers to questions **(CFT)**
- To make very simple measurements in line with their developing Mathematical understanding (eg temperature, rainfall)
- To record results
- To recall learnt information

Materials and their Uses:

- To recognise and identify materials **(Ob) (RSS)**
- To observe materials closely using all senses **(Ob)**
- To describe observations and findings using some subject-specific vocabulary (see list of properties and names of materials)
- To sort materials using the skills of selecting, classifying and categorising **(CG)**
- To ask scientific questions **(CFT)**
- To recall learnt information and skills

Investigating: (CFT)

Solubility?

- To begin to suggest ways in which we could find out what happens when we put materials in water
- To carry out simple tests accurately and with care
- To predict
- To record results
- To describe results and begin to attempt to explain them **(PS)**
- To recognise surprises **(PS)**

To begin to understand that tests should be "fair"

materials rot (paper link)? (environmental responsibility link)

- **Investigate** which materials are soluble.
- **Identify greensand** and investigate its properties (*Geography/History link* as “Seend” is built on a ridge of green “sand”)

Animals, including humans:

Enquiry: ***Are humans like tigers? What do animals (including humans) need to stay alive and to be healthy? If all living things die, why are there still humans and other animals in the world?***

- Identify and name a variety of animals from all five major groups (and some invertebrates)
- Classify some animals as carnivores, herbivores or omnivores
- Compare animals (including humans) making connections between the body parts of different animals e.g. knee joints, ears, front limbs (arms, legs, wings)
- Name parts of the human body including parts associated with the senses
- Know the life cycle of humans and some other animals (e.g. frog, fish, robin, lizard – and revise butterfly relating it to other insect life such as ants, beetles, flies)
- Recognise basic needs of animal life (water, food, air)

Know that exercise, diet and hygiene are important for keeping healthy

Animals, including humans:

- To recognise and identify animals **(Ob) (RSS)**
- To observe animals and pictures of animals closely using all senses **(Ob) (RSS)**
- To describe observations and findings using some subject-specific vocabulary such as names of animals and parts of bodies (eg Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves AND offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly) **(Ob) (RSS) (PS)**
- To sort living things using the skills of selecting, classifying and categorising **(CG)**
- To compare and contrast **(CG) (PS)**
- Use scientific vocab related to health (eg exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta) **(RSS)**
- To ask scientific questions **(CFT)**
- To recall learnt information about humans and animals

Investigating : (CFT)

Our senses

- To begin to suggest ways in which we could find answers to questions
- To carry out simple tests accurately and with care (eg sight/ smell/ taste)
- To make simple measurements in line with their developing Mathematical understanding
- To record results
- To describe results and begin to attempt to explain them **(PS)**
- To recognise surprises **(PS)**

		<ul style="list-style-type: none"> To begin to understand that tests should be “fair”
Chestnut	<p>Plants: Enquiries/key questions from the unit: <i>What can happen if we don't look after plants?</i> <i>What conditions are right for growing plants?</i></p> <ul style="list-style-type: none"> identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant investigate the way in which water is transported within plants explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal <p>Light: Enquiries/key questions from the unit: <i>NEED ENQUIRY QUESTION</i></p> <ul style="list-style-type: none"> recognise that they need light in order to see things and that dark is the absence of light notice that light is reflected from surfaces recognise that light from the sun can be dangerous and that there are ways to protect their eyes recognise that shadows are formed when the light from a light source is blocked by an opaque object find patterns in the way that the size of shadows change <p>States of Matter: Enquiries/key questions from the unit: <i>What happens to chocolate under different temperature conditions? (MIGHT CHANGE NEXT YEAR)</i></p> <ul style="list-style-type: none"> compare and group materials together, according to whether they are solids, liquids or gases observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature 	<p>Plants:</p> <ul style="list-style-type: none"> Dissect a plant and identify parts and explain their functions ICG Explore what is needed by growing plants in different conditions (inside, outside, fridge and cupboard). Observe what happens over the course of a few weeks OOT Conduct an experiment to observe what happens when water is absorbed by a plant (with food colouring) CFT Use research to find out what happens during pollination, germination and seed dispersal RSS <p>Light:</p> <ul style="list-style-type: none"> Explore sources of light (natural and man-made) Classify, compare and group materials into reflective and non-reflective ICG Observe what happens when an object blocks light Ob Investigate how shadows change (size and position) during the day by drawing around an object or silhouette on the playground - look for patterns PS <p>States of Matter:</p> <ul style="list-style-type: none"> Classify objects and pictures of objects into solids, liquids and gases ICG Apply heat to a range of materials (chocolate, butter, cheese and wax) and observe what happens Ob Explain what happens during the melting and freezing process using scientific understanding of states changing, linked to particles and movement Use research and other sources to explore and understand what happens at stages during the water cycle (linked to states changing) RSS

Sound:

Enquiries/key questions from the unit:

Is there a link between the time of day and how noisy it is in school? (MIGHT CHANGE NEXT YEAR)

- identify how sounds are made, associating some of them with something vibrating
- recognise that vibrations from sounds travel through a medium to the ear
- find patterns between the pitch of a sound and features of the object that produced it
- find patterns between the volume of a sound and the strength of the vibrations that produced it
- recognise that sounds get fainter as the distance from the sound source increases

Electricity:

Enquiries/key questions from the unit:

What material would be best to keep a drink warm? (MIGHT CHANGE NEXT YEAR)

- identify common appliances that run on electricity
- construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
- identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery
- recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
- recognise some common conductors and insulators, and associate metals with being good conductors

Living things and their habitats:

Enquiries/key questions from the unit:

How is human activity having an impact on animal habitats?

- recognise that living things can be grouped in a variety of ways
- explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment

Sound:

- Use instruments to explore how sounds are made (vibrations) and feel for them **Ob**
- Use research and secondary sources to find out how we hear sounds **RSS**
- Conduct an experiment with different objects and instruments to find patterns between pitch **PS**
- Conduct an experiment with different objects and instruments to find patterns between volume and the strength of vibrations **PS**
- Observe what happens when you move closer/further away from a sound **Ob**

Electricity:

- classify objects into those that use electricity and those that don't **ICG**
- Observe what happens when you remove parts from a circuit **Ob**
- Explain why the circuit is not complete (flow of current interrupted)
- Predict whether a lamp will light given the components in the circuit
- Observe and look for patterns when increasing the number of cells or lamps to a circuit **PS**
- Classify materials into those that conduct/insulate materials
- Use secondary sources to discuss which material would be best/safest to use to keep a drink warm **RSS**

Living things and their habitats:

- Classify and group animals (vertebrates and invertebrates) **ICG**
- Classify and group animals (mammals, amphibians, reptiles, fish, insects, birds) **ICG**
- Use secondary sources to research habitats **RSS**
- Explore and observe local habitats e.g. on school grounds or pond/stream study while on

	<ul style="list-style-type: none"> recognise that environments can change and that this can sometimes pose dangers to living things 	<p>residential and use the wildlife to determine the health of the habitat</p> <p>Ob</p> <ul style="list-style-type: none"> Use research and practical activity on residential (stream study) to explore human activity (simulated chemical leak) and how this has an impact on the wildlife OOT
Sycamore	<ul style="list-style-type: none"> Living Things - Classifying reptiles, amphibians, mammals, insects etc. based on characteristics. Evolution and inheritance – Each generation is different and adaptations to habitat may lead to evolution Electricity –develop understanding of circuits and the symbols used to represent them Light – Light travels in a straight line, can make shadows and can be reflected and/or refracted. Earth & Space – Movement of the bodies of the solar system and how that looks from earth. 	<ul style="list-style-type: none"> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs using test results to make predictions to set up further comparative and fair tests reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations Identifying scientific evidence that has been used to support or refute ideas or arguments.

The five enquiry types

- Observation over time = **OOT**
- Pattern seeking = **PS**
- Identifying, classifying and grouping = **ICG**
- Comparative and fair testing = **CFT**
- Research using secondary sources = **RSS**